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ABSTRACT

This study examines the effects of experiences with informal interactional diversity (defined by P. Gurin, 1999) on a range of desirable college outcomes for white students and students of color at different types of colleges. The sample was 53,756 full-time enrolled undergraduates who completed all the items on the College Student Experiences Questionnaire between 1998 and 2001 at 124 institutions. Although white students less frequently engaged with students from different backgrounds, such experiences positively affected self-reported gains and competence in working with people from, different backgrounds for both white students and students of color at all types of colleges. These and other effects vary for white students and students of color and by institutional type. (Contains 4 tables and 34 references.) (Author/SLD)

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The Effects of Interactional Diversity on Self-Reported Learning and Personal Development Outcomes

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The Effects of Interactional Diversity on Self-Reported Learning and Personal Development Outcomes

Abstract

This study examines the effects of experiences with informal interactional diversity (Gurin, 1999) on a range of desirable college outcomes for White and students of color in different types of colleges. Although White students less frequently engaged with students from different backgrounds, such experiences positively affected the self-reported gains and competence in working with people from different backgrounds for both White and other students at all types of colleges. These and other effects vary for White students and students of color and by institutional type.

The Effects of Interactional Diversity on Self-Reported Learning and Personal Development Outcomes

Introduction

Changing demographics are making the United States both more exciting and more complex. Colleges and universities are facing both opportunities and challenges in preparing students to live and work in a diverse society (Hurtado, Milem, Clayton-Pedersen, & Allen, 1999; Orfield, 2001).

There are three levels at which students experience diversity: structural diversity, classroom diversity, and informal interactional diversity (Gurin, 1999; Terenzini, Cabrera, Colbeck, Bjorklund, & Parente, 2001). Structural diversity represents the diverse composition of the student body, classroom diversity refers to incorporating content related to human diversity in the curriculum, and informal interactional diversity refers to the opportunity to interact with students from diverse backgrounds (Gurin, 1999). Most institutional efforts addressing diversity on college campuses focus on the first two -- recruiting more students from diverse backgrounds and incorporating multicultural perspectives in the curriculum. As Pascarella, Palmer, Moye, & Pierson (2001) indicated, college and university admissions offices devote considerable resources to recruiting a diverse student body with respect to race/ethnicity and country of origin. Examples of classroom diversity include incorporating content related to human diversity in the curriculum and offering multicultural education and cultural awareness workshops.

These efforts are important because structural and curricular diversity are associated with a variety of desirable student learning and personal development outcomes (Chang, 1999, 2000; Gurin, 1999; Hurtado, et. al, 1999, Orfield, 2001). Less is known, however, about the effects of student interactions with peers from diverse

backgrounds. Only a handful of studies take into account interactions between students from different racial or ethnic backgrounds as well as those from different social or economic backgrounds, country of origin, political and religious views, and so forth. Research so far indicates that informal interactional diversity experiences appear to positively affect student openness to diversity (Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996; Whitt, Edison, Pascarella, Terenzini, & Nora, 2001), critical thinking (Pascarella et al., 2001), and other desirable gains from college (Hurtado, Milem, Clayton-Pedersen, & Allen, 1999). It also appears that students of different backgrounds may benefit differentially from interactional diversity. For instance, Pascarella, et al. (2001) suggested White students benefited more than students of color from exposure to people from different backgrounds.

It is important to know whether the effects of experiences with diversity are the same or if they vary for students from different backgrounds (Pascarella et al., 2001). Moreover, although there is call for renewing the civic mission of American research universities (Checkoway, 2001), it is not yet clear if different types of institutions differentially affect student diversity experiences and the influence of these experiences on college outcomes.

Purpose

The purpose of this study is to examine the student and institutional characteristics associated with informal interactional diversity and the effects of such experiences of American undergraduate college students on a range of self-reported college outcomes. Informal interactional diversity is defined as interactions with peers from diverse racial and ethnic and social and economic backgrounds (Gurin, 1999).

Three questions guide the study. First, how do student and institutional characteristics affect student experiences with interactional diversity? Second, how does interactional diversity affect college outcomes for various groups of students? Finally, do the effects of interactional diversity on student learning and personal development vary for students attending different types of colleges?

Methods

Data Source, Instrument, and Variables of Interest

The sample for this study was composed of 53,756 full-time enrolled undergraduate students who completed all items on the 4th edition of the College Student Experiences Questionnaire (CSEQ) between 1998 and 2001 at 124 institutions offering at least a baccalaureate degree: 35 doctoral universities-extensive, 13 doctoral universities-intensive, 43 masters' colleges and universities, 19 liberal arts colleges, and 14 general colleges (Carnegie Foundation for the Advancement of Teaching, 2000). Fifty-five percent were attending state-assisted schools, 38% were at doctoral universities-extensive, 11% doctoral universities-intensive, 32% masters' institutions, 11% liberal arts colleges, and 8% general colleges as classified by The Carnegie Foundation for the Advancement of Teaching (2000). Sixty-three percent were women and 83% were White, 8.5% Asian or Pacific Islander, 5.2% African American, 5.1% American Indian and those who did not report their ethnic identity, and 4.1% Hispanic. Approximately 45% were first-year students, 21% sophomores, 16% juniors, and 17% seniors. About 35% were majoring in an applied field, 12% in social sciences, 18% in mathematics, science, or related area, and 9% in the humanities. Four percent were undecided as to major field and 22% had two or more majors.

The data used in this study are from the College Student Experiences Questionnaire (CSEQ) research program. The fourth edition of the CSEQ (Pace & Kuh, 1998) is designed to assess various in-class and out-of-class experiences of students attending four-year colleges and universities and includes 166 items divided into four sections.

The first section (18 items) asks for information about the student's background (e.g., age, year in school, major field, parents' education) and how many hours per week they study and work on and off the campus and how they are paying for their education.

The second section includes 111 questions that are divided into 13 College Activities scales that measure the amount of time and energy (quality of effort) students devote to various activities. The response options for these items are: 1="never," 2="occasionally," 3="often," and 4="very often." This section also includes two questions about the amount of reading and writing students do.

The third section (10 items) measures student perceptions of the extent to which their institution's environment emphasizes important conditions for learning personal development. Student responses are scored on a 7 point scale ranging from "strong emphasis" = 7 to a "weak emphasis" = 1. Two additional questions measure student satisfaction.

In the final section students estimate the extent to which they have made progress since starting college in 25 areas that represent desired outcomes of higher education Response options for the Gains items are: 1="very little," 2="some," 3="quite a bit," and 4="very much."

As with other student surveys, the validity of self-reported information depends on five conditions: (1) if the information requested is known to the respondents, (2) the questions are phrased clearly and unambiguously (Laing, Sawyer, & Noble, 1988), (3) the questions refer to recent activities (Converse & Presser, 1989); (4) the respondents think the questions merit a serious and thoughtful response (Pace, 1985), and (5) answering the questions does not threaten, embarrass, or violate the privacy of the respondent or encourage the respondent to respond in socially desirable ways (Bradburn & Sudman, 1988) (see also Baird, 1976; Lowman & Williams, 1987; Pike, 1995; Turner & Martin, 1984). CSEQ items satisfy all these conditions. The questions are clearly worded, well defined, have high face validity, and ask students to reflect on what they are putting into and getting out of their college experience. The questions refer to what students have done during the current school year, typically a reference period of about six months or less. The format of most response options is a simple rating scale that helps students to accurately recall and record the requested information, thereby minimizing this as a possible source of error. The Estimate of Gains items ask students to make a value-added judgment (Pace, 1990) and student responses to such questions are generally consistent with other evidence, such as results from achievement tests (Brandt, 1958; DeNisi & Shaw, 1977; Hansford & Hattie, 1982; Lowman & Williams, 1987; Pace, 1985; Pike, 1995). Overall, the CSEQ is thought to have excellent psychometric properties (Ewell & Jones, 1996; Kuh, Vesper, Connolly & Pace, 1997; Kuh & Siegel, 2001).

In this study, we are mainly interested in two sets of variables: informal interactional diversity (student contact with peers from different backgrounds, broadly

defined) and a variety of desirable outcomes of college. The relevant items from the CSEQ are scored as follows (1 = never, 2 = occasionally, 3 = often, and 4 = very often) and include:

- Became acquainted with students whose race or ethnic background was different from yours
- Became acquainted with students from another country
- Had serious discussions with students whose philosophy of life or personal values were very different from yours
- Had serious discussions with students whose political opinions were very different from yours
- Had serious discussions with students whose religious beliefs were very different from yours
- Had serious discussions with students whose race or ethnic background was different from yours
- Had serious discussions with students from a country different from yours

Table1 shows that the seven diversity items are fairly highly correlated (ranging from .368 to .716) as well as with the diversity interaction scale score (all larger than .70). Therefore, we cannot employ individual items in the regression analysis because of concerns about multi-colinearity, even such an approach might well provide new insights about the possible different effects of diversity experience on college outcomes (Pascarella et al., 2001). In our analysis, we used individual item and scale scores as dependent variables to examine the relationships between student and institutional characteristics and diversity experiences. We use the diversity scale score as an

independent variable when examining how interactional diversity affects student gain from college. The high alpha coefficient (.893) indicates that the diversity scale is highly reliable.

(Insert Table 1 About Here)

Student outcomes are represented by students' responses to 25 questions about how much progress they've made since starting college (1 = very little, 2 = some, 3 = quite a bit, 4 = very much). For this study seven outcome variables are used, the sum of gain, the five gain factors reported by Kuh et al. (1997) (general education, personal development, vocational preparation, science and technology, intellectual development) and a "diversity competence" measure. They are defined for this study as follows:

- Sum of Gain (the sum of student responses to the 23 CSEQ gains items which ask students how much their college or university experience contributed to their growth and development during college. Response options for the gains items are 1= "very little," 2= "some," 3= "quite a bit," and 4= "very much").
- Five measures of learning outcomes distilled from a factor analysis of the 23 Estimate of Gains items. They are Intellectual Skills, General Education, Personal/Social Development, Science/Technology, and Practical/Vocational Preparation (Kuh, et al, 1997). The measures of the five gain factors were the sums of the response to the gain items clustered within each gain factor. The response options for the gains items are 1= "very little," 2= "some," 3= "quite a bit," and 4= "very much."
- Diversity competence measure was based on student responses to four CSEQ gain items (knowledge about other parts of the world and other people; awareness of different philosophies, cultures, and ways of life; developing the ability to get along

with different kinds of people; developing the ability to function as a member of a team). The response options for the gains items are 1= "very little," 2= "some," 3= "quite a bit," and 4= "very much."

Data Analysis

Student characteristics and institutional characteristics can potentially affect student collegiate experiences and outcomes (Pascarella & Terenzini, 1991). For this reason we created dummy variables to represent gender (women as reference group), race and ethnicity (White as reference group), major field (pre-professional as reference group), and class level (freshmen as reference group) in the analyses. The institutional characteristics in all analyses included institutional type as defined by the 2000 Carnegie classification (doctoral university-extensive, doctoral university-intensive, master's university, liberal arts college, and general college; doctoral university-extensive as reference group), institutional selectivity (Barron's Profiles of American Colleges, 1996), and institutional control (public and private with public institutions as reference group).

We first regressed students' interactional diversity item and scale scores on individual and institutional variables to examine how student background and institutional characteristics related to experiences with diversity in general. We discovered that American Indians, Asian Americans, African Americans, and Hispanics had similar scores on the interactional diversity scale (Table 2) and gains scales. Thus, for subsequent analyses pooled students from these groups to create one larger group (students of color) to simplify the analyses.

We then regressed student outcomes on the interactional diversity scale for all students. We intended to examine the total effects of diversity experience on student

gains, not the net effects. Therefore, we did not try to control other college experiences. Student experience with diversity could be a direct effect or an indirect effect of other types of student experiences, such as collaboration with peers and so forth. Additional analyses using interactional terms (interactional diversity score by race/ethnicity for all students and students in different types of institutions) in regression analyses were then conducted to explore whether the effects of diversity experience on student gains vary by student race/ethnicity (White and students of color) in all institutional types. According to Hardy (1993), this is a statistically conservative approach for determining differences in relationships (Konrad & Pfeffer, 1990). Because interaction terms in multiple regressions tend to increase standard errors of estimated coefficients (which reduces the likelihood of statistically significant findings), we lowered the alpha level to $p<.05$ for analyses with interactional terms.

We then disaggregated student sample by race/ethnicity and institutional type to examine the effects of diversity experience on student gain, controlling for individual and institutional variables. Though hierarchical linear model (HLM) (Bryk & Raudenbush, 1992) is a recommended approach for analyzing multilevel measure, the institutional variables in this study are uniformly applicable for individual students. That is, there was no difference of organizational measures varied among different students. Thus, the results from HLM were essentially comparable to the multiple regression analysis (Hu & Kuh, 2001).

Results

Student experiences with interactional diversity were affected differentially by individual and institutional characteristics (Table 2). Overall when the interactional

diversity scale is the dependent variable, students of color (all four groups), traditional age students, and students majoring in all other fields (except undecided) had higher levels of interactional diversity compared with White students, non-traditional age students, and students in pre-professional fields, holding constant all other variables. Students' parental educational level and academic preparation were positively related to diversity experience. Moreover, students in private institutions had higher interactional diversity scale scores. Students at all other types of institutions (except liberal arts colleges) had less experience with diversity than their counterparts at doctoral extensive institutions, controlling for all other student and institutional variables.

(Insert Table 2 About Here)

In terms of experiences with various aspects of interactional diversity, the pattern was generally consistent with results when the diversity scale was the dependent variable. However, some interesting differences by student characteristics were discovered. For example, men were less likely to become acquainted with students of a different race and to have discussions with students with different values and religious beliefs. However, men were more likely to interact with students who had different political opinions than their own and with students from different countries. First-year students were more likely than sophomores, juniors, and seniors to interact with students from different racial and ethnic backgrounds. However, juniors and seniors were more likely to interact with students of other countries.

It should be noted, however, even though students of different backgrounds do differ in their interactional diversity experiences in college, student backgrounds such as gender, race/ethnicity, year in college, major field, and institutional type, control, and

selectivity can only explain a tiny portion of variances existed with individual students as indicated by the R^2 (ranging from .044 to .079) in Table 2. This suggested that student interactional diversity experience rarely depends on who the students are.

When all students from all types of institutions are considered, interactional diversity experiences positively affected the sum of gain score as well as all six gain factors (not tabled). However, additional analyses that included the interactional terms suggested that the effects varied by student race/ethnicity in different types of institutions (Tables 3). Therefore, we also analyzed separately the effects of diversity interaction experience on gains for both White students and students of color in all types of institutions (Table 4).

The interactional diversity experiences had differential effects on students of color and White students (Table 3). Overall, interactional diversity affected students of color to a greater extent than White students in terms of vocational preparation gains but smaller effects on general education, science and technology, and diversity competence gains. The differential effects on students of different race/ethnicity also varied by institutional type. In doctoral-extensive institutions, interactional diversity experiences had larger effects on students of color compared with White students on vocational preparation gains and intellectual development, but smaller effects on general education. In doctoral-intensive institutions, interactional diversity experience had larger effects on students of color on vocational preparation. In liberal arts colleges, interactional diversity experience had smaller effects on students of color in science and technology and intellectual development. In general colleges, interactional diversity experience had smaller effects

on students of color on sum of gain, general education, personal development, and diversity competence.

(Insert Table 3 About Here)

As Table 4 shows, interactional diversity has substantial, uniformly positive effects on all the dependent variables -- the sum of all gains score, all five gains factor scores, and the diversity competence measure. The magnitudes of the coefficients are generally consistent with those when interaction terms were included (see Table 3).

(Insert Table 4 About Here)

Limitations

This study is limited in that the data are from a convenience sample of institutions that comprise the national CSEQ database. Also there may be unknown effects on the results due to differences in sampling and administration procedures across institutions. In addition, students may report their gains from college using different baselines depending on their opening to college experiences (Pascarella, 2001). Certainly this concern warrants further exploration. That said, the CSEQ research program represents one of the most extensive national databases with survey information from college students related to their diversity experiences in college, other college activities, and gains from college.

Discussion and Conclusion

The results of this study suggest that student experiences with interactional diversity vary slightly with student and institutional characteristics. For example, students in research-extensive institutions are slightly more likely to engage in interactional diversity. However, the small portion of variance explained by both student

characteristics and institutional characteristics suggests student diversity experiences to much less degree depends on student and institutional characteristics. Experiences with diversity have substantial and positive effects for virtually all students and on a wide range of desirable college outcomes. However, the effects vary slightly by student race or ethnicity in different types of institutions. For instance, students of color in liberal arts colleges and general colleges benefit less from diversity experiences than White students on several learning and personal development outcomes, although both groups benefit from diversity experiences.

That said, it appears that efforts to promote informal interactions with students from diverse backgrounds will likely have desirable positive effects across the board. Such efforts should begin early in the first year and sustain across student years in college. Moreover, experiences with interactional diversity will better prepare all students to function in an increasingly diverse society and workplace. Thus, attempts to improve undergraduate education should include multiple forms of interactional diversity, as these experiences appear to have at the least salutary effects on enhancing student learning and personal development.

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TABLE 1. Correlation of Interactional Diversity Items and Scale a

	1	2
1. Acquainted: students of different race	1.000	
2. Acquainted: students from other country	.611	1.000
3. Discussions: students of different values	.454	.431
4. Discussions: students of different political	.368	.371
5. Discussions: students of different religious	.400	.377
6. Discussions: students of different race	.633	.530
7. Discussions: students of different country	.482	.716
8. Interactional Diversity Scale	.710	.733
Alpha = .893		

nd Reliability of Interactional Diversity Scale

3	4	5	6	7	8
1.000					
.684	1.000				
.701	.669	1.000			
.614	.579	.611	1.000		
.515	.498	.503	.670	1.000	
.807	.769	.786	.850	.806	1.000

TABLE 2. Standardized Coefficients of Student and Institutional C

	Interactional Diversity Scale	Acquainted students of different race	Acquainted students fron other countr
Men	-.010	-.068*	-.009
(Women)			
Non-Traditional	-.069*	-.039*	-.027*
(Traditional)			
American Indian and Other	.057*	.055*	.060*
Asian or Pacific Islander	.051*	.112*	.104*
African American	.077*	.102*	.068*
Hispanic	.057*	.091*	.059*
(White)			
Parent Education	.034*	.009	.005
Academic Preparation	.035*	.009	.024*
Sophomore	.008	-.019*	-.003
Junior	-.006	-.031*	-.006
Senior	.014	-.024*	.006
(First Year)			
Humanities	.070*	.018*	.030*
Math and Sciences	.017*	.003	.039*
Social Sciences	.061*	.014	.009
More than One Major	.089*	.042*	.056*
Undecided	-.006	-.012	-.004
(Pre-professional)			
Private	.129*	.083*	.143*
(Public)			
Barron's selectivity	.013	.015*	.008
Doctoral-Intensive	-.024*	-.021*	-.043*
Masters'	-.086*	-.081*	-.064*
Liberal Arts	-.013	-.025*	-.002
General	-.075*	-.062*	-.052*
(Doctoral-Extensive)			
R^2	.079	.064	.067

Characteristics on Interactional Diversity

	Discussions: students of different values	Discussions: students of different political	Discussions: students of different religious	Discussions: students of different race	Discussions: students of different country
	-.025*	.050*	-.020*	-.016*	.021*
	-.082*	-.064*	-.086*	-.051*	-.028*
	.031*	.025*	.032*	.054*	.059*
	-.007	-.048*	-.019*	.073*	.078*
	.037*	.029*	.019*	.110*	.064*
	.024*	.014*	.012	.071*	.047*
	.033*	.046*	.042*	.022*	.023*
	.032*	.046*	.042*	.014*	.022*
	.008	.024*	.010	.005	.013
	-.012	.012	-.013	-.004	.015*
	.004	.042*	-.004	.016*	.030*
	.075*	.079*	.081*	.050*	.047*
	.009	.004	.020*	*	.019*
	.064*	.089*	.069*	.052*	.033*
	.087*	.093*	.087*	.062*	.057*
	-.007	-.003	-.004	-.004	-.003
	.082*	.083*	.055*	.116*	.142*
	.007	.013	.013	.010	.004
	-.007	-.018*	-.002	-.013	-.028*
	-.037*	-.069*	-.051*	-.093*	-.076*
	-.006	-.019*	-.007	-.014	.000
	-.044*	-.064*	-.043*	-.077*	-.068*
	.044	.056	.044	.073	.067

TABLE 3. Results from Analyses with Interactional Terms of Race

	All	Doctoral-Extensive
Sum of Gain		
General Education	–	–
Personal Development		
Science and Technology	–	
Vocational Preparation	+	+
Intellectual Development		+
Diversity Competence	–	

Note: White as reference group; "+" indicates the effects of interac
White students and "–" indicates the other way; Significance level

e/ethnicity by Interactional Diversity Scale

Doctoral-Intensive	Masters' University	Liberal Arts College	General College
			–
			–
			–
		–	
+			
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tional diversity experiences were larger for students of color than at .05 level.

TABLE 4. Standardized Coefficients of Interactional Diversity Sca

Dependent	All			Doctoral-Extensive			Doctoral-Intens	
Variable	All	White	Other	All	White	Other	All	White
Sum of Gain	.376*	.375*	.386*	.380*	.379*	.374*	.369*	.354*
General Education	.354*	.356*	.337*	.355*	.360*	.335*	.358*	.350*
Personal Development	.312*	.309*	.314*	.313*	.207*	.260*	.323*	.309*
Science and Technology	.221*	.222*	.206*	.208*	.306*	.322*	.232*	.224*
Vocational Preparation	.185*	.179*	.202*	.187*	.182*	.200*	.209*	.193*
Intellectual Development	.306*	.301*	.310*	.308*	.303*	.315*	.290*	.271*
Diversity Competence	.406*	.408*	.386*	.413*	.421*	.388*	.404*	.397*

Note: * $p < 0.001$

ıle on Student Gain

ıve		Masters'			Liberal Arts			General	
Other	All	White	Other	All	White	Other	All	White	Other
.411*	.368*	.368*	.353*	.365*	.366*	.335*	.378*	.395*	.327*
.373*	.359*	.359*	.345*	.337*	.331*	.327*	.352*	.370*	.283*
.361*	.307*	.306*	.302*	.295*	.290*	.285*	.321*	.336*	.276*
.260*	.225*	.227*	.205*	.194*	.204*	.150*	.243*	.254*	.202*
.264*	.176*	.172*	.193*	.185*	.177*	.192*	.160*	.163*	.152*
.351*	.298*	.295*	.299*	.304*	.309*	.264*	.306*	.314*	.291*
.418*	.392*	.392*	.379*	.396*	.395*	.369*	.403*	.422*	.340*